CLAIMS

What is claimed is:

1. A process for the polymerization of olefins which comprises contacting under polymerization conditions, one or more olefin monomers with a catalyst composition comprising an activator and a catalyst precursor represented by the following structure:

$$MX_xY_yZ_z$$

wherein M is a Group 4, 5 or 6 metal, X, Y and Z are groups independently bound to M; and x, y and z are each 0 or an integer from 1 to 3, provided that the net charge of the catalyst precursor is zero; wherein:

(a) X is a moiety having the formula AR_4; wherein A is a Group 13 element and each R is independently selected from the group consisting of hydrogen and C_1 to C_{20} hydrocarbyl radicals; provided that at least one R is hydrogen;

(b) Y is a bidentate group having the formula $(T)_t$—D—$(E)_e$—G forming an independent bidentate ligand bound to M through the D group and the G group, wherein:

(i) D is selected from the group consisting of boron, carbon, silicon, nitrogen, phosphorous, oxygen and sulfur;

(ii) G represents a mono- or polycyclic radical comprising an atom Q, where Q is selected from the group consisting of nitrogen, oxygen, phosphorous and sulfur;

(iii) E is a divalent C_1 to C_{10} hydrocarbon group, where e is 0 or 1; and

(iv) T is a hydrocarbon or heteroatom-containing hydrocarbon bound to D, where t is a number sufficient to satisfy the valency of the group D; and

(c) Z is selected from the group consisting of halogens, alkyls, aryls, amides, phosphides, sulfides, silylalkyls and carboxylates.

2. The process of claim 1, wherein the cocatalyst is selected from alumoxanes, alkylaluminum compounds, noncoordinating anions and combinations thereof.

3. The process of claim 1, wherein said one or more olefin monomers comprise at least one monomer having 2 to 12 carbon atoms.

4. The process of claim 1, wherein said at least one monomer is selected from ethylene, propylene, 1-butene, 1-pentene, 4-methyl-1-pentene, 1-hexene, 1-octene and 1-decene.

5. The process of claim 1, wherein the process is a gas phase process and the one or more olefin monomers comprise ethylene.

6. The process of claim 1, wherein said one or more olefin monomers comprise ethylene and at least one α-olefin having 3 to 8 carbon atoms.

7. A polyolefin produced by the process of claim 1.